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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,532	07/08/2005	Akira Kasuya	0020-5392PUS1	1483

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EXAMINER	
COLE, ELIZABETH M	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
04/01/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/541,532	KASUYA ET AL.	
	Examiner	Art Unit	
	Elizabeth M. Cole	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5 and 7-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5 and 7-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/6/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/21/09 has been entered.

2. Claims 1 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what is meant by a “fiber extended yarn”. It is not clear what structure a fiber extended yarn has. The specification does not define the structure of a “fiber extended yarn”. How does a fiber extended yarn differ from other multifilament yarns? Also, claim 10 fails to further limit claim 1, since the limitation that the reinforcing fibers is a "fiber extended yarn" is already found in claim 1.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,2,5,9-12, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0144939 A2. EP ‘939 discloses a reinforcing cloth comprising a plurality of untwisted warp yarns and a plurality of untwisted weft yarns. The warp and weft yarns can be high strength multifilament yarns such as carbon, aromatic polyamide, or glass

fibers. See page 4, lines 15-21. The warp and weft yarns are laid to form a cross laid fabric. See figure 1 and page 4, lines 9-14. The reinforcing cloth further comprises a weldable yarn. The weldable yarn can be a bicomponent or conjugated yarn and can comprise polyethylene and polypropylene as the sheath and core components of the yarn. See example 2 and page 6, line 1-8. The weldable yarn is wrapped around one of the warp or weft untwisted yarns and the structure is heat pressed to form a reinforcing fabric. See examples. Since the weldable yarn can be wrapped around the warp or weft yarns, the structure of EP '9'9 meets the limitations of claim 15.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0144939 A2. EP '939 discloses a reinforcing cloth comprising a plurality of untwisted warp yarns and a plurality of untwisted weft yarns. The warp and weft yarns can be high strength multifilament yarns such as carbon, aromatic polyamide, or glass fibers. See page 4, lines 15-21. The warp and weft yarns are laid to form a cross laid fabric. See figure 1 and page 4, lines 9-14. The reinforcing cloth further comprises a weldable yarn. The weldable yarn can be a bicomponent or conjugated yarn and can comprise polyethylene and polypropylene as the sheath and core components of the yarn. See example 2 and page 6, line 1-8. The weldable yarn is wrapped around one

of the warp or weft untwisted yarns and the structure is heat pressed to form a reinforcing fabric. See examples. Since the weldable yarn can be wrapped around the warp or weft yarns, the structure of EP '939 meets the limitations of claim 15. EP '939 differs from the claimed invention because EP '393 does not clearly disclose which of the polyethylene and polypropylene is used as the high melting or low melting point polymer. However, since EP '939 teaches using conjugated yarns which can comprise polyethylene and polypropylene, the person of ordinary skill in the art would have been able to select the particular melting points of the components in order to form a strongly bonded fabric. Further, with regard to claim 16, EP '939 does not teach the claimed degree of flatness. However, since EP '939 teaches the same components and teaches bonding the structure through the use of heat and pressure, it would have been obvious to have pressed and heated the structure in order to obtain a structure having the desired shape and flatness.

7. Claims 1-2, 5, 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroiwa et al, U.S. Patent Application Publication No. 2001/0006866 in view of Nakamura et al, U.S. Patent No. 6,641,763 and Brunner et al, U.S. patent No. 5,452,507. Kuroiwa et al discloses a multiaxial laminated nonwoven fabric comprising layers comprising tows. The tows correspond to the claimed multifilament yarns. The tows may comprise conjugate fibers having lower melting sheaths and higher melting cores and may be made from polyolefins. See paragraph 0025 and paragraph 0082. The different layers each comprise a plurality of the tows arranged in parallel with each other within each layer. The tows can comprise either the warp or the weft, depending

on which layer they are in. See figures. The layers are laid at angles to each other which meets the limitations of claims 12-13. .See paragraph 0036. Kuroiwa et al differs from the claimed invention because while Kuroiwa et al teaches employing polyolefins generally, it does not specifically teaches the claimed composite structure of the fibers. Nakamura teaches that it is known to form conjugate fibers having polyolefin as both the sheath and core. See examples. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the particular conjugate fibers of Nakamura in the invention of Kuroiwa et al, motivated by their art recognized suitability for the intended purpose.

8. Kuroiwa et al also differs from the claimed invention because it does not teach the claimed fibers, although it does teach high strength fibers such as aramid fibers and ultra high strength polyethylene fibers can be used in some layers. Brunner et al teaches that carbon, glass, aramid and boron fibers are recognized in the art as equivalent to the high strength polyethylene fibers and aramid fibers disclosed in Kuroiwa. See col. 3, lines 5-16. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the equivalent fibers disclosed by Brunner et al in the material of Kuroiwa, in view of their art recognized equivalence. An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).

9. With regard to the limitation that the fibers are thermo-compressed to form the sheet shape, Kuroiwa teaches laminating the layers by heat and pressure. See paragraph 0065.

10. Applicant's arguments filed 1/21/09 have been fully considered but they are not persuasive. Applicant argues that Kuroiwa does not teach the claimed reinforcing fiber yarn is selected from carbon fibers, glass fiber, boron fibers and steel fibers. However, Kuroiwa is not relied on for teaching this feature. However, Kuroiwa does teach employing high strength fibers such as a aramid fibers and ultra high strength polyethylene fibers. Brunner et al is relied on for the teaching that the claimed fibers were recognized as being equivalents to the fibers disclosed in Kuroiwa. Therefore, it would have been obvious to have substituted the particular fibers of Brunner for the fibers of Kuroiwa.

11. Applicant argues that the instant specification states that polyolefin based multifilament have not bonding property to high strength fibers such as carbon fibers, glass fibers, boron fibers, steel fibers, aramid fibers and vinylon fiber and that therefore persons of ordinary skill in the art would not have been motivated to use such synthetic inorganic fibers with the polyolefin fibers of Kuroiwa. However, regardless of what the specification says, as shown by the EP 0144939 A2 reference which is applied above, it was known in the art to use polyolefin fibers to bond fibers such as carbon fibers into bonded structures. See, example 2 of EP '939. Further, it would be expected that the polyolefin fibers when heated and pressed as in Kuroiwa would bond with the fibers set forth in Brunner. Finally, the person of ordinary skill in the art does not have to have an

absolute certainty of success, but just a reasonable expectation of success. The fact that the fibers of Kuroiwa were recognized in the art as equivalents to the fibers set forth in Brunner, (the claimed fibers), would have provided the person of ordinary skill in the art with at least a reasonable expectation of success in substituting the fibers of Brunner into the structure of Kuroiwa.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

The examiner's supervisor Rena Dye may be reached at (571) 272-3186.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (571) 273-8300.

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

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